



P/35-11

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE
BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of: M. Krysiak

Serial No.: 09/510,782

Art Unit: 3643

Filed: February 23, 2000

Examiner: S. Nguyen

For: FORTIFIED MULCH

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

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APPEAL BRIEF

GROUP 3600

Sir:

This is an Appeal from the decision dated June 27, 2003 of the Primary Examiner, finally rejecting the claims 1-9.

Real Party in Interest

The real party in interest is Encap, LLC., located at 3921 Algoma Road, Green Bay, Wisconsin 54311.

Related Appeals and Interferences

There are no appeals or interferences related to the present application.

Status of Claims

Claims 1-9 as amended by an Amendment of March 13, 2002 are on appeal and set forth in the Appendix.

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Summary of the Invention

The present invention relates to a process for creating fortified mulch through an agglomeration/granulation process. A moist paper fiber based product is impregnated with NPK (nitrogen, phosphorous, potassium) fortifiers in a mixer. The paper product is combined with the NPK fortifiers either before, or after entry into a mixer. The mixer mixes and tumbles the paper fibers, the fortifiers and the binding agent in the mixer. The mixer performs work that results in an agglomerated (or granulated) product that is a homogeneous blend of the paper product and NPK fortifiers. This product is then dried to a desired level of moisture and screened as necessary. A binding agent can be added at the mixer to enhance the agglomeration/granulation process. If a binding agent is added the paper fiber based product need not be moist. To increase the percent of on-sized product, a size reduction operation can be performed on the paper fiber product prior to entry into the mixer. (Pg. 2, lines 2-12).

The mixer is preferably a pin mixer, but can also be a pan pelletizer, paddle mixer, drum granulator or other type of mixer. The pin mixer is preferably a double helix pin arrangement. The paper fiber based product is preferably comprised of a by product of a paper making process. Sewage sludge can be used to create the fortified mulch rather than paper fibers. (Pg. 2, lines 19-23)

The present invention relates to an agglomerated/granulated mulch product made by a mixing and tumbling operation that is comprised of nitrogen, phosphorous and potassium fortifiers and paper fibers.

Issues

Has the Examiner properly rejected claims 1, 4-6, 8, 9 of the '782 application under 35 USC 103 as being obvious over Spittle, 5,916,027 in view of Morgan, 6,029,395.

For claims 1 and 4, the Examiner argues that Spittle discloses a granulation method (Col. 3, lines 28-30) for creating mulch comprising the steps of adding paper fibers to a mixer (Col. 2, line 50 and Col. 3, lines 6-13); adding NPK fortifiers before the mixer (Col. 2, line 53 and col. 3, lines 16-17); mixing the

paper fibers and NPK into a mixture and spraying a fine mist as the mixture is agitated (Col. 3, lines 18-22); and drying contents of the mixer. (See col. 3, lines 18-30). However, the Examiner states that Spittle is silent about using a pin mixer which performs the step of mixing/tumbling, and a binding agent. The Examiner states that Morgan teaches a mulch making method in which he employs a binding agent in his mulch mix to hold other elements, such as paper fibers and granules, in the mix together. In addition, the Examiner states that Morgan employs a high speed mixer, e.g., rods extending from a central shaft of the mixer, similar to a pin mixer (col. 6, lines 5-8) to mix his mulch. The Examiner states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a high speed mixer as taught by Morgan to mix the mulch of Spittle so as to form a well mixed mulch to form granules. In addition, the Examiner states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a binding agent as taught by Morgan in the mulch mix of Spittle to hold elements in the mix together. The Examiner notes that Spittle states that one can use any known granulation equipment (col. 3, lines 29-30), therefore, a high speed mixer or pin mixer as taught by Morgan is a known granulation equipment to mix mulch composition into granules.

With regards to claim 5, the Examiner states that Spittle as modified by Morgan is silent about employing a pin mixer having a double helix pin arrangement. The Examiner states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a double helix pin arrangement mixer to mix the mulch composition of Spittle as modified by Morgan, depending on the user's preference for his/her intended use as long as it is a granulation equipment as indicated by Spittle (col. 30, line 30).

With regards to claim 6, the Examiner states that Spittle as modified by Morgan (emphasis on Spittle) further discloses the paper fibers comprises a by-product of a paper making process (col. 3, lines 6-14).

With regards to claim 8, the Examiner states that Spittle as modified by Morgan discloses a granulated mulch product made by mixing and tumbling operation.

With regards to claim 9, the Examiner states that Spittle as modified by Morgan (emphasis on Spittle) further discloses the step of performing a size reduction operation on the paper fibers prior to adding the fibers to the mixer (col. 3, lines 6-15).

Has the Examiner properly rejected claim 2 of the '782 application under 35 USC 103 as being obvious over Spittle, 5,916,027, as modified by Morgan, 6,029,395, and further in view of Moore, 5,266,097.

The Examiner states that Spittle as modified by Morgan is silent about employing a pan pelletizer in place of the pin mixer. Moore teaches a fertilizer method and composition which he mixes the ingredients in the composition in a pan mixer until the composition formed into a spherical granules (see example 1). The Examiner states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a pan pelletizer as taught by Moore to mix the mulch composition of Spittle as modified by Morgan, depending on the user's preference for his/her intended use as long as it is a granulation equipment as indicated by Spittle (col. 3, line 30).

Has the Examiner properly rejected claim 3 of the '782 application under 35 USC 103 as being obvious over Spittle, 5,916,027 as modified by Morgan, 6,029,395 and further in view of Clendinning, 3,901,838.

The Examiner states that Spittle as modified by Morgan is silent about employing a paddle mixer in place of the pin mixer. Clendinning teaches a mulch film method and composition in which they employ a paddle mixer to mix the ingredients in the composition together (col. 13, lines 29-34). The Examiner states that it would have been obvious to one having ordinary skill at the time the invention was made to employ a paddle mixer as taught by Clendinning to mix the mulch composition of Spittle as modified by Morgan, depending on the user's preference for his/her intended use as long as it is a granulation equipment as indicated by Spittle (col. 3, line 30).

Has the Examiner properly rejected claim 7 of the '782 application under 35 USC 103 as being obvious over Spittle 5,916,027 as modified by Morgan, 6,029,395 and further in view of Decker 5,806,445.

The Examiner states that Spittle as modified by Morgan are silent about using sewage sludge in place of the paper fibers. Decker teaches in col. 2, lines 10-13, that sewage sludge in place of the paper fibers. Decker teaches in col. 2, lines 10-13, that sewage sludge is proven to be a very effective mulch media because it is plentiful, inexpensive, easy to handle and rich in nutrients. The Examiner states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute sewage sludge as taught by Decker for the paper fibers of Spittle as modified by Morgan in order to reduce cost and ease of handling and still produce an effective mulch.

Grouping of Claims

Claims 1, 4-6, 8 and 9 are grouped together. Claim 2 is a separate group. Claim 3 is a separate group. Claim 7 is a separate group.

Argument

Has the Examiner properly rejected claims 1, 4-6, 8, 9 of the '782 application under 35 USC 103 as being obvious over Spittle, 5,916,027 in view of Morgan, 6,029,395.

Claim 1 relates to an agglomerated/granulation method for creating a fortified mulch comprising adding paper fibers, NPK fortifiers and a binding agent to a pin mixer. In the mixer, mixing and tumbling occurs. The contents in the mixer are then dried.

The Examiner states that Spittle is silent about using a pin mixer, which performs the step of mixing/tumbling, and a binding agent. It is applicant's argument that Spittle does not teach a mixing and tumbling process, but teaches a pressure compression extrusion process.

The Examiner does not acknowledge that Spittle teaches a pressure compression extrusion product, because nowhere in the Spittle reference does it state in words that it uses a pressure compression extrusion process. All lines 18-27 teaches are mainly that the mixture is pelletized into pellets 3/16 inch diameter and then the product is cooled and dried.

Column 3 lines 18-27 of Spittle, is the section which the Examiner relies upon regarding the mixing and tumbling process and product. This section discloses a pressure compression extrusion process and product. Spittle discloses mulch flakes made by shredding newspaper and processing it through a hammer mill. The resulting paper pieces are then introduced into a finish hammer mill. Also added to the finish hammer mill is the appropriate amount of sawdust. The paper is pieces about 1/4 to 3/4 inch in length and the sawdust sized to pass through a 20 mesh screen. The mixture exiting the finish hammer mill has added to it the correct amount of marker dye, liquid surfactant and water absorbing polymer, if desired. Granular fertilizer is then added if desired. These are all dry ingredients.

The entire mixture is then processed through a conditioner, in which the correct amount of moisture is sprayed into the mixture as a fine mist as the product is agitated. The mixture is then pelletized into pellets of 3/6 inch diameter, with a length of about 1 - 1 1/4 inches. This is a compression extrusion technique like play dough. The product is then cooled, to harden and dry the outside skin, to prevent mold growth, and keep the pellets from breaking apart. The pellets are then granulated into flakes. The mulch flakes produced during

this process are 1/16 to 3/8 inches in the longest dimension and are up to 1/8 inch thick at most. This is a shearing process. The present invention specifically describes a product made by a mixing and tumbling agglomeration/granulation process.

Enclosed are publications, which illustrate the difference between the method of the present invention and the methods shown in the prior art references. These publications are Table 8-52 from the notes from "Briquetting, Pelletizing, Extrusion of Fluid Bed/Spray Granulation" April 1998, "Perry's Chemical Engineers handbook", which shows the same table, and "Briquetting, Pelletizing, Extrusion of Fluid Bed/Spray Granulation" 1995. The publications describe the difference between a tumbling and mixer agglomeration, which is described in the patent application and the pressure compaction method described in Spittle. The publications also show a difference in equipment that is used for these processes.

In response to the Examiner's arguments applicant submitted the declaration of Lee Hoffmann and William Engelleitner. Mr. Hoffmann has 27 years of experience in the field of agglomeration with Feeco International. (Hoffmann Declaration Paragraph 1). Mr. Engelleitner has 45 years of experience in the field of agglomeration, size enlargement. (Engelleitner Declaration, Paragraph 1). Mr. Hoffmann and Mr. Engelleitner have reviewed the present application and the Spittle patent. (Hoffmann Declaration Paragraphs 2 and 3, Engelleitner Declaration, paragraphs 3 and 4). Declarants state that in the world of agglomeration (particle size enlargement), there are several distinctively

different types of agglomeration, each of which uses specific equipment which produces substantially different types of products. (Hoffmann Declaration Paragraph 7, 11, Engelleitner Declaration, paragraph 5). The process of the present invention is classified as agitation, while the process disclosed and taught by Spittle requires pressure agglomeration. (Hoffmann Declaration Paragraph 4, Engelleitner Declaration, paragraph 6).

Agitation is defined as agglomeration by tumbling (growth). Particles are adhered together by use of balling drums, pans, cones and mixers via impact and tumbling. The resultant shape is a sphere. (Hoffmann Declaration August 15, 2002 Paragraph 6).

Pressure agglomeration utilizes methods such as extrusion presses, pelleting machines (pelletized), piston presses (tableting), and roller presses (briquetting; compacting). The pellets are formed by pressure imparted upon the materials. The resultant shape is a cylinder for products made with pelleting machines and extrusion presses. (Hoffmann Declaration August 15, 2002 Paragraph 7).

The mixing and tumbling agglomeration/granulation method differs substantially from the pressure compression extrusion method described in Col. 3 of Spittle. (Hoffmann Declaration Paragraph 6, Engelleitner Declaration Paragraph 8).

The Spittle process as defined is a multi-step process. The materials are combined, pelletized and then flaked. The Spittle process, requires the use of pressure equipment to form the pellets. In order to form a flake from a pellet, the

pellet must be sheared to form thin flakes with ancillary equipment. In contrast, the mulch agglomeration process of the present invention is a single step tumble process that utilizes a high speed mixer, not pressure, to form granules. (Engelleitner Declaration, Paragraph 13, Hoffmann Declaration Paragraph 13).

As stated in the Declarations, there are four very distinct type of agglomeration, which use very specific types of equipment. Therefore it would not be obvious to use other equipment to modify the method of Spittle. (Hoffmann Declaration Paragraph 11, Engelleitner Declaration, Paragraph 5).

Morgan describes producing a slurry. Morgan relates to a biodegradable mulch mat comprising an air and water permeable, light impermeable, open celled composite of granules and fibers in a binder matrix prepared from a foam precursor. Biodegradable fibers include cellulosic fibers such as shredded wood, straw, paper, corn stalks, cotton fiber and mosses, protein fibers, and synthetic polymer fibers. Useful binders include polysaccharides, glycosides, vegetable gums, vinyl polymers, waxes and cross-linkable oils. Slurries of fibers, granules, binder and surfactant are gas entrained, e.g., by whipping, to provide a foam, which is applied to soil around seedlings, the foams dry to a durable, biodegradable mulch mat.

Spittle uses a pressure agglomeration process. There is nothing taught or disclosed in Spittle which states a binding agent as taught in Morgan would be obvious to add. Further there is no reason that a binding agent would be even useful to the mulch of Spittle since Spittle uses pressure to form and keep the

mulch together. (Engelleitner Declaration, Paragraph 12, Hoffmann Declaration, Paragraph 12)

Spittle does not teach or make obvious the process and product taught by the claims of the present invention. (Engelleitner Declaration Paragraph 11, Hoffmann Declaration Paragraph 10).

Based on the above claims 1 and 4 are not obvious.

Claim 5 requires that the pin mixer have a double helix pin arrangement. The Examiner states that Spittle as modified by Morgan are silent about employing a pin mixer having a double helix arrangement. As stated by Declarant's, the agglomeration processes are distinctively different types of processes which use different types of equipment. Therefore, the use of a pin mixer having a double helix arrangement to mix the mulch is not an obvious matter of choice. (Hoffmann Declaration Paragraphs 7 and 11, Engelleitner Declaration, Paragraph 5). Since Spittle teaches pressure agglomeration, a pin mixer and more specifically one having a double helix arrangement would not be used, nor would it be obvious.

Claim 6 requires that the paper fibers are comprised of a by-product of paper making process. For the reasons stated above, Spittle as modified by Morgan does not disclose or make obvious claim 6 which further discloses the paper fibers comprise a by product of a papermaking process. Nowhere does Spittle at Col. 3 lines 6-14 disclose paper fibers comprised of a by product of a papermaking process.

Claim 8 relates to a mulch product made by a mixing and tumbling operation comprising fortifiers and paper fibers. Spittle as modified by Morgan does not disclose a granulated mulch product made by mixing and tumbling operation.

Declarants state that in the world of agglomeration (particle size enlargement), there are several distinctively different types of agglomeration, each of which uses specific equipment which produces substantially different types of product. (Engelleitner Declaration, Paragraph 5, Hoffmann Declaration, Paragraphs 7 and 11). The process of the present invention is classified as agitation, while the process disclosed and taught by Spittle requires pressure agglomeration. (Hoffmann Declaration Paragraph 4, Engelleitner Declaration, Paragraph 6).

The Spittle process as defined is a multi-step process. The materials are combined, pelletized and then flaked. The Spittle process requires the use of pressure equipment to form the pellets. In order to form a flake from a pellet, the pellet must be sheared to form thin flakes with ancillary equipment. In contrast, the mulch agglomeration process of the present invention is a single step tumble process that utilizes a high speed mixer, not pressure, to form granules. (Engelleitner Declaration Paragraph 13 and Hoffman Declaration Paragraph 13). The process described in the Spittle patent from Column 3 lines 18-30 clearly teaches a pressure agglomeration method. This section clearly does not teach the method claimed in the present invention. (Hoffmann Declaration Paragraph

5, Engelleitner Declaration Paragraph 7). Therefore, Claim 8 is not obvious over Spittle as modified by Morgan.

Claim 9 requires performing a size reduction operation on the paper fibers prior to adding the paper fibers to the mixer. For the reasons stated above, Spittle as modified by Morgan does not disclose the step of performing a size reduction operation on the paper fibers prior to adding the fibers to the mixer as claimed in the present invention. Spittle as modified by Morgan does not disclose or make obvious claim 9.

Has the Examiner properly rejected claim 2 of the '782 application under 35 USC 103 as being obvious over Spittle, 5,916,027, as modified by Morgan, 6,029,395, and further in view of Moore, 5,266,097.

Claim 2 requires the use of a pan pelletizer. The Examiner states that Spittle as modified by Morgan is silent about employing a pan pelletizer in place of the pin mixer.

Moore teaches a method of preparing an aminoureaformaldehyde fertilizer composition. The method is most effectively performed batch wise in a high intensity mixer/reactor/granulator comprising a cylindrical pan rotating around a near vertical axis and containing a small diameter mixer rotating at a high speed relative to that of the pan.

To prepare the polymers in the form of granules, the acid catalyzed polymerization is performed in a rotating inclined pan which carries the polymers toward a stationary scraper/deflector which deflects the polymer toward a high speed rotor which provides a strong sheer force and homogenization to the polymer and fertilizer enhancing solids. The initially viscous liquid polymer and

contained solids are repeatedly passed through the rotor and the polymer and solids are rolled along the walls of the rotating inclined pan as the acid catalyzed polymerization continues until the ammonia is reacted with the urea and formaldehyde and a fluid matrix of water insoluble aminoureaformaldehyde polymer is formed into semi-spherical granules.

Declarants state that in the world of agglomeration (particle size enlargement), there are several distinctively different types of agglomeration, each of which uses specific equipment which produces substantially different types of products. (Hoffmann Declaration Paragraphs 7 and 11, Engelleitner Declaration Paragraph 5). The process of the present invention is classified as agitation, while the process disclosed and taught by Spittle requires pressure agglomeration. (Hoffmann Declaration Paragraph 4, Engelleitner Declaration Paragraph 6).

Spittle would not use a pan pelletizer which is used in an agitation process and not for a pressure agglomeration process. As shown by Moore, Moore forms spherical granules which are formed in an agitation process versus cylinder products formed in a pressure agglomeration process of Spittle.

The Spittle process as defined is a multi-step process. The materials are combined, pelletized and then flaked. The Spittle process requires the use of pressure equipment to form the pellets. In order to form a flake from a pellet, the pellet must be sheared to form thin flakes with ancillary equipment. In contrast, the mulch agglomeration process of the present invention is a single step tumble process that utilizes a high speed mixer, not pressure, to form granules.

(Engelleitner Declaration Paragraph 13, Hoffmann Declaration Paragraph 13). The process described in the Spittle patent from Column 3 lines 18-30 clearly teaches a pressure agglomeration method. This section clearly does not teach the method claimed in the present invention. (Hoffmann Declaration Paragraph 5, Engelleitner Declaration Paragraph 7).

Therefore, Spittle as modified by Morgan and further in view of Moore does not make claim 2 obvious.

Has the Examiner properly rejected claim 3 of the '782 application under 35 USC 103 as being obvious over Spittle, 5,916,027 as modified by Morgan, 6,029,395 and further in view of Clendinning, 3,901,838.

Claim 3 requires the use of a paddle mixer. The Examiner has stated that Spittle as modified by Morgan is silent about employing a paddle mixer in place of the pin mixer.

Declarants state that in the world of agglomeration (particle size enlargement), there are several distinctively different types of agglomeration, each of which uses specific equipment which produces substantially different types of products. (Hoffmann Declaration Paragraph 7 and 11, Engelleitner Declaration Paragraph 5). The process of the present invention is classified as agitation, while the process disclosed and taught by Spittle requires pressure agglomeration. (Hoffmann Declaration Paragraph 4, Engelleitner Declaration Paragraph 6).

Spittle would not use a paddle mixer which is used in an agitation process for a pressure agglomeration process.

Therefore, Spittle as modified by Morgan and further in view of Clendinning does not make claim 3 obvious.

Has the Examiner properly rejected claim 7 of the '782 application under 35 USC 103 as being obvious over Spittle 5,916,027 as modified by Morgan, 6,029,395 and further in view of Decker 5,806,445.

Claim 7 requires the use of sewer sludge. The Examiner has stated that Spittle as modified by Morgan are silent about using sewer sludge in place of paper fibers.


The present application relates to a composition and method for making a fortified mulch with fertilizers using an agglomeration/granulation process. As we stated in the prior art mulches are mixed with water and agitated in a holding tank, and then sprayed onto a seedbed. This is described in Decker.

For the reasons stated above, Spittle as modified by Morgan and further in view of Decker do not make claim 7 obvious.

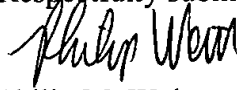
Reversal of the Examiner and allowance of all the claims are accordingly respectfully requested.

Three copies of the Brief and our check for \$165.00 are enclosed herewith.

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Appendix

CLAIMS

1. An agglomeration/granulation method for creating a fortified mulch comprising;
 - adding paper fibers to a pin mixer;
 - adding nitrogen, phosphorous and potassium fortifiers and a binding agent before or at said mixer;
 - mixing and tumbling said paper fibers, said fortifiers and said binding agent in said mixer;
 - drying contents of said mixer.
2. The method of claim 1 wherein the pin mixer is replaced with a pan pelletizer.
3. The method of claim 1 wherein the pin mixer is replaced with a paddle mixer.
4. The method of claim 1 wherein the pin mixer is replaced with a drum granulator.
5. The method of claim 1 wherein said pin mixer has a double helix pin arrangement.

6. The method of claim 1 wherein said paper fibers are comprised of a by-product of a paper making process.
7. The method of claim 1 wherein said paper fibers are replaced with sewage sludge.
8. An agglomerated/granulated mulch product made by a mixing and tumbling operation that is comprised of nitrogen, phosphorous and potassium fortifiers and paper fibers.
9. The method of claim 1 further comprising:
performing a size reduction operation on said paper fibers prior to adding said paper fibers to said mixer.